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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/049,417

06/20/2002

Kim Rishoj Pedersen

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1154

23413 7590 02/06/2009  
CANTOR COLBURN, LLP  
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EXAMINER

MEI, XU

ART UNIT

PAPER NUMBER

2614

NOTIFICATION DATE

DELIVERY MODE

02/06/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/049,417	<b>Applicant(s)</b> PEDERSEN ET AL.	
	<b>Examiner</b> Xu Mei	<b>Art Unit</b> 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10/27/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12, 15, 28 and 31-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12, 15, 28 and 31-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. This communication is responsive to the applicant's amendment dated 10/27/2008.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12, 15, 28, 31-33 and 34-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Moorer (US-6,072,878) in view of Kasai et al (US-6,067,360, hereafter, Kasai).

Regarding claims 12 and 42, Moorer in Figs. 1 and 3 discloses a method of processing audio signals (17, 19) or establishing a room response (listening area of a room, col. 3, line 18-31) from processing audio signal, wherein the audio signals comprising a first sub-signals (sub-signals S1-S5 of 17) and a second sub-signal (sub-signals S1-S5 of 19), each of the sub-signals comprising N components, each of said N components representing a direction (angles  $\Phi$  and  $\Theta$  is components representing a direction of sub-signals S1-S5); the method including adding the sub-signals (adders 39-43) to form a sum-signal comprising N sum-components, each of said sum-components being the sum component of components of the first and second sub-

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signals component presenting corresponding directions (each of components of signal 17 + each of components of signal 19; see also col. 4, line 61-col. 5, line 24); and subsequently rendering the sum-signal (sum-signal S1-S5 are rendered or yielded or produced subsequently from adder 39-43) into a number of loudspeaker output channels. What's not taught by Moorer is the number of loudspeaker output channels is lower than N.

Down mixing sound localization for stereophonic effect is old and well known in the art, Kasai discloses a method and apparatus for localizing a multichannel sound signals including down mixing that provide the number of loudspeaker output channels (left and right) that is lower than the input signal channels (5 input signal channels, see Figs. 2 and 5). It would have been obvious to one of ordinary skill in the art to modify the method of processing audio signals taught by Moorer with the audio signal channels down mixing method of providing number of loudspeaker output channels that is lower than the input signal channels, as shown by Kasai in order to generate localizing sound images that is capable of achieving sufficient "surround-effect" for a stereophonic output channels.

For what's called for in claim 15, see col. 3, line 29.

Regarding claim 31, the components of signal S1 of 17 is uncorrelated to signal S2 of 19, for example.

Regarding claim 34, the position or angular direction for audio signals as shown in Fig. 1 are in three dimensional space or in three dimensional directions.

For what's called for in claims 35-38, see angles  $\Phi$  and  $\Theta$  of Fig. 1 as they are being applied to the audio signals of 17 and 19, where it shows angular relation to a common reference plane.

Regarding claim 39-41, it's clear that the sound directional distribution with regard to the sound source 13 as shown in Fig. 1 is having a larger proportion of directions in areas with a relatively high density of sound signals then in areas with a relative low proportion of sound signals (i.e., areas that do not have sound source); or with a larger proportion of directions in areas in which human perception of sound signals is relatively sharp (i.e., area that sound source being positioned is having a better or louder human perception of sound signal then the areas without).

Regarding claims 28 and 32-33, the combinations of Moorer and Kasai discloses the method for processing audio signal as discussed in claims 12 above, but fails to disclose a specific numbers of components as claimed. Moorer discloses the audio processing method as in Fig. 1 having an exemplary sound position 13, but indicated other sounds that are desired to be simultaneously positioned at other angles (i.e., other directional components for the desired signals). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to realize that the desired numbers of components can also be simulated by the teaching of Moorer with the audio signals being desired to be simultaneously positioned at other angles, i.e., other directions.

***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xu Mei whose telephone number is 571-272-7523. The examiner can normally be reached on maxi flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like

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assistance from a USPTO Customer Service Representative or access to the automated information system, call  
800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Xu Mei/  
Primary Examiner, Art Unit 2615  
01/22/2009